

In th Claims

Claim 1 (currently amended): A photolithographic method comprising forming overlapping exposure patterns on a photosensitive material from light passed through a single reticle; the reticle being displaced relative to the photosensitive material between a first exposure to a first light and a second exposure to a second light so that a first pattern of the first light produced by the first exposure is offset and overlapping on the photosensitive material relative to a second pattern of the second light produced by the second exposure, the first and second patterns comprising regions of the photosensitive material exposed to the first and second light, respectively, and regions of the photosensitive material unexposed to the first and second light, respectively; either an entirety of the exposed regions from each of the first and second patterns being extended entirely through the photosensitive material or an entirety of the unexposed regions from each of the first and second patterns being extended entirely through the photosensitive material.

Claim 2 (original): The method of claim 1 wherein the displacement of the reticle relative to the photosensitive material comprises movement of the reticle while the photosensitive material is held stationary.

Claim 3 (original): The method of claim 1 wherein the displacement of the reticle relative to the photosensitive material comprises movement of the photosensitive material while the reticle is held stationary.

Claim 4 (original): The method of claim 1 wherein the displacement of the reticle relative to the photosensitive material comprises movement of both the photosensitive material and the reticle relative to one another.

Claim 5 (original): The method of claim 1 wherein the first light has a different wavelength than the second light.

Claim 6 (original): The method of claim 1 wherein the first light has the same wavelength as the second light.

Claim 7 (currently amended): The method of claim 1 wherein the photosensitive material is over a semiconductive substrate, and wherein at least portions of the combined first and second patterns define portions of capacitor structures; the method further comprising:

~~selectively removing~~ utilizing the extension of either the exposed or unexposed portions regions through of the photosensitive material to pattern the photosensitive material into blocks comprising an outline of the portions of the capacitor structures; and

transferring the outline to at least a portion of the semiconductive substrate underlying the photosensitive material to form the portions of the capacitor structures.

Claim 8 (currently amended): The method of claim 1 wherein the photosensitive material is over a semiconductive substrate, and wherein at least portions of the combined first and second patterns define portions of DRAM structures; the method further comprising:

~~selectively removing~~ utilizing the extension of either the exposed or unexposed ~~portions~~ regions through of the photosensitive material to pattern the photosensitive material into blocks comprising an outline of the portions of the DRAM structures; and

transferring the outline to at least a portion of the semiconductive substrate underlying the photosensitive material to form the portions of the DRAM structures.

Claim 9 (currently amended): A photolithographic method comprising forming overlapping first and second exposure patterns on a photosensitive material from electromagnetic radiation passed through a single reticle; wherein the first exposure pattern of the radiation comprises features separated by about a minimum feature spacing that can be accomplished with a single reticle exposure during the photolithographic processing; and wherein the overlapping first and second patterns comprise features separated by less than said minimum feature spacing, the first and second patterns comprising regions of the photosensitive material exposed to the first and second electromagnetic radiation, respectively, and regions of the photosensitive material unexposed to the first and second electromagnetic radiation, respectively; either an entirety of the exposed regions from each of the first and second patterns being extended entirely through the photosensitive material or an entirety of the unexposed regions from each of the first and second patterns being extended entirely through the photosensitive material.

Claim 10 (original): The method of claim 9 wherein at least 20% of the second exposure pattern overlaps the first exposure pattern.

Claim 11 (original): The method of claim 9 wherein at least 30% of the second exposure pattern overlaps the first exposure pattern.

Claim 12 (original): The method of claim 9 wherein from at least about 20% to about 80% of the second exposure pattern overlaps the first exposure pattern.

Claim 13 (original): The method of claim 9 wherein from at least about 20% to about 50% of the second exposure pattern overlaps the first exposure pattern.

Claim 14 (currently amended): The method of claim 9 wherein the photosensitive material is over a semiconductive substrate, and wherein at least portions of the combined first and second patterns define portions of semiconductor device structures; the method further comprising:

~~selectively removing~~ utilizing the extension of either the exposed or unexposed ~~portions~~ regions through of the photosensitive material to pattern the photosensitive material into blocks comprising an outline of the portions of the semiconductor device structures; and

transferring the outline to at least a portion of the semiconductive substrate underlying the photosensitive material to form the portions of the semiconductor device structures.

Claim 15 (currently amended): The method of claim 9 wherein the photosensitive material is over a semiconductive substrate, and wherein at least portions of the combined first and second patterns define portions of capacitor structures; the method further comprising:

~~selectively removing~~ utilizing the extension of either the exposed or unexposed ~~portions~~ regions through of the photosensitive material to pattern the photosensitive material into blocks comprising an outline of the portions of the capacitor structures; and transferring the outline to at least a portion of the semiconductive substrate underlying the photosensitive material to form the portions of the capacitor structures.

Claim 16 (currently amended): A photolithographic method comprising:

providing a semiconductor substrate having a photosensitive material thereover;
passing electromagnetic radiation through a reticle to form a first pattern of the radiation on the photosensitive material; the first pattern comprising regions of the photosensitive material exposed to the first electromagnetic radiation and regions of the photosensitive material unexposed to the first electromagnetic radiation; the reticle having a first dimension along a first axis;

displacing the reticle relative to the semiconductor substrate along the first axis by an increment less than the first dimension of the reticle; and

after the displacing, passing the electromagnetic radiation through the reticle to form a second pattern of the radiation on the photosensitive material; the second pattern comprising regions of the photosensitive material exposed to the second electromagnetic radiation and regions of the photosensitive material unexposed to the second electromagnetic radiation; and

extending either an entirety of the exposed regions from each of the first and second patterns entirely through the photosensitive material or an entirety of the unexposed regions from each of the first and second patterns entirely through the photosensitive material.

Claim 17 (original): The method of claim 16 wherein the reticle comprises a first portion that defines that first pattern and second portion which is opaque to the radiation; the second portion having an area that is at least about 20% of the area of the reticle.

Claim 18 (original): The method of claim 16 wherein the reticle comprises a first portion that defines that first pattern and second portion which is opaque to the radiation; the second portion having an area that is at least about 30% of the area of the reticle.

Claim 19 (original): The method of claim 16 wherein the reticle comprises a first portion that defines that first pattern and second portion which is opaque to the radiation; the first portion being about equal in area to the second portion.

Claim 20 (original): The method of claim 16 wherein the reticle has a second dimension along a second axis; the second axis being orthogonal to the first axis, the method further comprising:

displacing the reticle relative to the semiconductor substrate along the second axis by an increment less than the second dimension of the reticle; and

after displacing the reticle along the second axis, passing the radiation through the reticle to form another pattern of the radiation on the photosensitive material.

Claim 21 (original): The method of claim 20 wherein the displacing the reticle along the second axis occurs before the displacing the reticle along the first axis.

Claim 22 (original): The method of claim 20 wherein the displacing the reticle along the second axis occurs after the forming the second pattern of the radiation on the photosensitive material.

Claim 23 (original): The method of claim 16 wherein the first pattern of the radiation comprises features separated by about a minimum feature spacing that can be accomplished with a single reticle exposure at the time of the photolithographic processing; and wherein the overlapping first and second patterns comprise features separated by less than said minimum feature spacing.

Claim 24 (original): The method of claim 16 wherein the first pattern of the radiation consists of a unit feature which is repeated a plurality of times across the pattern.

Claim 25 (original): The method of claim 16 wherein the first pattern of the radiation comprises a first unit feature which is repeated a plurality of times across the pattern, and a second unit feature which is not repeated across the pattern.

Claim 26 (original): The method of claim 16 wherein the first pattern of the radiation comprises first and second features; and wherein the first features are repeated in the first pattern more frequently than any repeating of the second features in the first pattern.

Claim 27 (new): A photolithographic method, comprising:

providing a reticle comprising a plurality of patterned windows;

providing a photosensitive material;

a first exposure of the photosensitive material to a first light patterned with the reticle; the first exposure forming a first set of exposure patterns in the photosensitive material from the first light passing through the patterned windows;

a second exposure of the photosensitive material to a second light patterned with the reticle; the second exposure forming a second set of exposure patterns in the photosensitive material from the second light passing through the patterned windows;

displacing the reticle relative to the photosensitive material between the first and second exposures so that the first set of exposure patterns are interspersed within the second set of exposure patterns; and

wherein no portion of the photosensitive material is exposed to both the first light in the first exposure and the second light in the second exposure.

Claim 28 (new): The method of claim 27 wherein the displacement of the reticle relative to the photosensitive material comprises movement of the reticle while the photosensitive material is held stationary.

Claim 29 (new): The method of claim 27 wherein the displacement of the reticle relative to the photosensitive material comprises movement of the photosensitive material while the reticle is held stationary.

Claim 30 (new): The method of claim 27 wherein the displacement of the reticle relative to the photosensitive material comprises movement of both the photosensitive material and the reticle relative to one another.

Claim 31 (new): The method of claim 27 wherein the first light has a different wavelength than the second light.

Claim 32 (new): The method of claim 27 wherein the first light has the same wavelength as the second light.

Claim 33 (new): A photolithographic method, comprising:

providing a reticle comprising a plurality of patterned windows corresponding to circuit device structures;

providing a photosensitive material;

a first exposure of the photosensitive material to a first light patterned with the reticle; the first exposure forming a first set of circuit device structure patterns in the photosensitive material from the first light passing through the patterned windows;

a second exposure of the photosensitive material to a second light patterned with the reticle; the second exposure forming a second set of circuit device structure patterns in the photosensitive material from the second light passing through the patterned windows;

displacing the reticle relative to the photosensitive material between the first and second exposures so that the first set of circuit device structure patterns are interspersed within the second set of circuit device structure patterns; and

wherein there is a two-to-one correspondence of circuit device structure patterns in the photosensitive material to patterned windows in the reticle after the first and second exposures.

Claim 34 (new): The method of claim 33 wherein the displacement of the reticle relative to the photosensitive material comprises movement of the reticle while the photosensitive material is held stationary.

Claim 35 (new): The method of claim 33 wherein the displacement of the reticle relative to the photosensitive material comprises movement of the photosensitive material while the reticle is held stationary.

Claim 36 (new): The method of claim 33 wherein the displacement of the reticle relative to the photosensitive material comprises movement of both the photosensitive material and the reticle relative to one another.

Claim 37 (new): The method of claim 33 wherein the first light has a different wavelength than the second light.

Claim 38 (new): The method of claim 33 wherein the first light has the same wavelength as the second light.